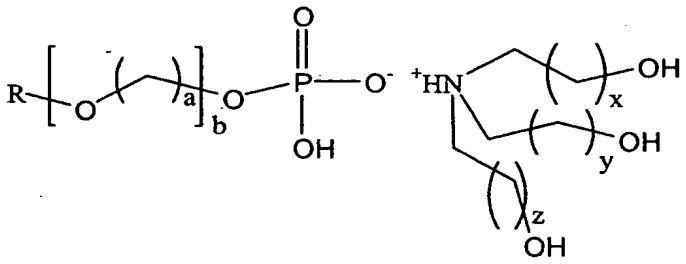
What is Claimed is:

1. A cleaning solution for photoresist patterns comprising:

H_2O as a solvent; and

a compound represented by following Formula 1 as a surfactant:

Formula 1



wherein

R is C_2-C_{20} alkyl or C_6-C_{25} alkyl aryl;

x, y and z individually are an integer ranging from 0 to 10;

a is 2 or 3; and

b is an integer ranging from 2 to 50.

2. The cleaning solution according to claim 1, wherein the b is an integer ranging from 6 to 11.

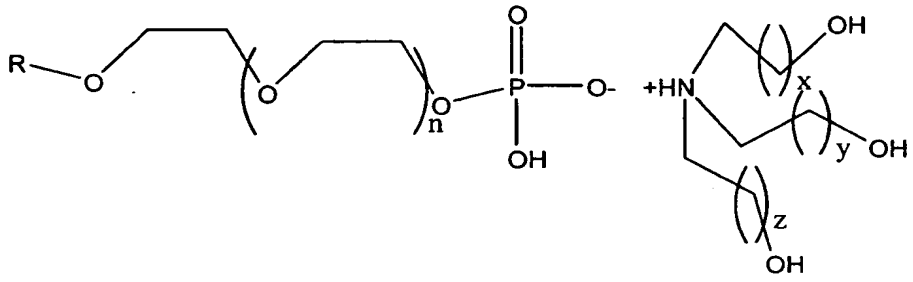
3. The cleaning solution according to claim 1, further comprising an alcohol.

4. The cleaning solution according to claim 1, wherein the compound of Formula 1 is present in an amount ranging from 0.001 to 2 wt% based on the total weight of said solution.

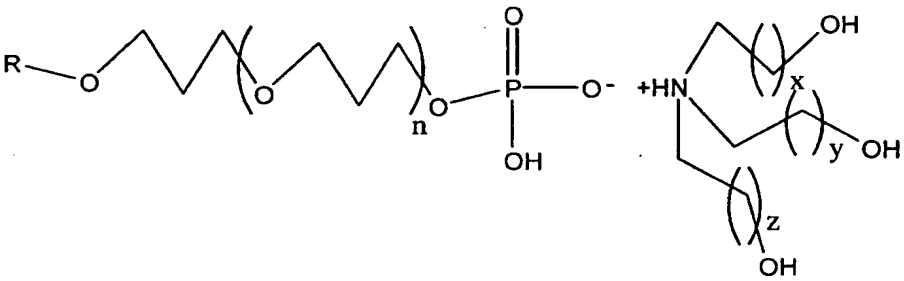
5. The cleaning solution according to claim 3 wherein the alcohol is present in an amount ranging from 0 to 20 wt% based on the total weight of said solution.

6. The cleaning solution according to claim 1, wherein the compound of Formula 1 is represented by Formula 2 or Formula 3:

Formula 2



Formula 3



wherein

R is C_2-C_{20} alkyl or C_6-C_{25} alkyl aryl;

x, y and z individually are an integer ranging from 0 to 10; and

n is an integer ranging from 1 to 49.

7. The cleaning solution according claim 6, wherein the compound of Formula 2 is present in an amount ranging from 0.001 to 2 wt% based on the total weight of said solution, and the alcohol is present in an amount ranging from 0 to 20 wt% based on the total weight of said solution.

8. The cleaning solution according to claim 6, wherein the compound of Formula 3 is present in an amount ranging from 0.001 to 2 wt% based on the total weight of said solution, and the alcohol is present in an amount ranging from 0 to 10 wt% based on the total weight of said solution.

9. The cleaning solution according to claim 7, wherein the compound of Formula 2 is present in an amount ranging from 0.01 to 1 wt% based on the total weight of said solution, and the alcohol is present in an amount ranging from 0.01 to 10 wt% based on the total weight of said solution.

10. The cleaning solution according to claim 8, wherein the compound of Formula 3 is present in an amount ranging from 0.001 to 1 wt% based on the total weight of said solution, and the alcohol is present in an amount ranging from 0.001 to 5 wt% based on the total weight of said solution.

11. The cleaning solution according to claim 6, wherein R is selected from the group consisting of octyl, octyl phenyl, nonyl, nonyl phenyl, decyl, decyl phenyl, undecyl, undecyl phenyl, dodoecyl and dodecyl phenyl, and n is an integer ranging from 5 to 10.

12. The cleaning solution according to claim 3, wherein the alcohol is selected from the group consisting of C_1-C_{10} alkyl alcohol, C_1-C_{10} alkoxyalkyl alcohol, and mixtures thereof.

13. The cleaning solution according to claim 12, wherein the C_1-C_{10} alkyl alcohol is selected from the group consisting of methanol, ethanol, propanol, isopropanol, n-butanol, sec-butanol, t-butanol, 1-pentanol, 2-pentanol, 3-pentanol, 2,2-dimethyl-1-propanol and mixtures thereof.

14. The cleaning solution according to claim 12, wherein the C_1-C_{10} alkoxyalkyl alcohol is selected from the group consisting of 2-methoxyethanol, 2-(2-methoxyethoxy)ethanol, 1-methoxy-2-propanol, 3-methoxy-1,2-propandiol and mixtures thereof.

15. The cleaning solution according to claim 1, wherein the solution is selected from the group consisting of

mixture comprising the compound of Formula 2 as a surfactant wherein R is nonyl; x, y and z are 1, respectively; and n is 7, methanol as an alcohol and water as a solvent;

mixture comprising the compound of Formula 2 as a surfactant wherein R is octyl; x, y and z are 1, respectively; and n is 7, methanol as an alcohol and water as a solvent;

mixture comprising the compound of Formula 2 as a surfactant wherein R is dodecyl; x, y and z are 0, respectively; and n is 7, isopropanol as an alcohol and water as a solvent;

mixture comprising the compound of Formula 2 as a surfactant wherein R is octyl phenyl; x, y and z are 1, respectively; and n is 3, isopropanol as an alcohol and water as a solvent;

mixture comprising the compound of Formula 3 as a surfactant wherein R is nonyl; x, y and z are 1, respectively; and n is 7, methanol as an alcohol and water as a solvent;

mixture comprising the compound of Formula 3 as a surfactant wherein R is octyl; x, y and z are 1, respectively; and n is 7, methanol as an alcohol and water as a solvent;

mixture comprising the compound of Formula 3 as a surfactant wherein R is dodecyl; x, y and z are 0, respectively; and n is 7, isopropanol as an alcohol and water as a solvent; and

mixture comprising the compound of Formula 3 as a surfactant wherein R is octyl phenyl; x, y and z are 1, respectively; and n is 3, isopropanol as an alcohol and water as a solvent.

16. The cleaning solution according to claim 15, wherein the surfactant of Formula 2 is present in an amount ranging from 0.001 to 2 wt% based on the total weight of said mixture, and the alcohol is present in an amount ranging from 0 to 20 wt% based on the total weight of said mixture.

17. The cleaning solution according to claim 15, wherein the surfactant of Formula 3 is present in an amount ranging from 0.001 to 2 wt% based on the total weight of said mixture, and the alcohol is present in an amount ranging from 0 to 10 wt% based on the total weight of said mixture.

18. The cleaning solution according to claim 16, wherein the surfactant of Formula 2 is present in an amount ranging from 0.01 to 1 wt% based on the total weight of said mixture, and the alcohol is present in an amount ranging from 0.01 to 10 wt% based on the total weight of said mixture.

19. The cleaning solution according to claim 17, wherein the surfactant of Formula 3 is present in an amount ranging from 0.001 to 1 wt% based on the total weight of said mixture, and the alcohol is present in an amount ranging from 0.001 to 5 wt% based on the total weight of said mixture.

20. A method for forming a photoresist pattern, comprising:

(a) preparing a semiconductor substrate on which an underlying layer is formed;

(b) coating a photoresist on the underlying layer to form a photoresist film;

(c) exposing the photoresist film to light;

(d) developing the exposed photoresist film; and

(e) cleaning the resulting structure using the cleaning solution of claim 1.

21. The method according to claim 20, further comprising soft baking step before part (c) or post baking step after part (c).

22. The method according to claim 20, wherein the source of the light is selected from the group consisting of KrF (248 nm), ArF (193 nm), VUV (157 nm), EUV (13 nm), E-beam, X-ray and ion-beam.

23. A semiconductor device manufactured by the method of claim 20.